PROPOSED
September 14, 2004

Temporary Covered Source Application Review
Application No. 0476-01

File #:	0476-01 Renewal Application No. 0476-02
Applicant:	E. M. Rivera & Sons, Inc.
Facility Title:	170 TPH Portable Crushing Plant with One (1) 362 HP Diesel Engine Generator
Location :	Various Temporary Sites, State of Hawaii Initial Location: Honokohau, Kailua-Kona, Hawaii Initial Location: 21:78:050 N, 08:13:350 E Current Location: Palisades Estate Subdivision near Keahole Airport, Kona, Hawaii
Responsible Official:	Hiram Rivera President (808) 325-5057 Fax (808) 325-3279
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Equipment Description:

Table 1 - Rock Crushing Operation

Unit	Type	Manufacturer	Model	Year	Description	Capacity	Fuel
Portable Crushing Plant	Crusher	Gator Machinery Company	2436; Serial # GTJC 6290-002	1998	24" x 36" feed opening Crushing of basalt rock or concrete.	70 - 170 TPH[a]	driven by Diesel Engine Gen. listed below
	Vibrating Grizzly Feeder	Gator Machinery Company	--	1998	38" x 16' feed point for crusher	--	driven by Diesel Engine Gen. listed below
	Built-in Conveyor Belt & Radial Conveyor	--	--	1998	transports material exiting crusher to stockpile	--	driven by Diesel Engine Gen. listed below
	Water spray system	--	--	--	nozzles located at material transfer points (see below)	--	N/A
	Diesel Engine Generator	Caterpillar	3306; Serial # 64Z29316	8/1999	Drives mobile crusher and conveyors	362 HP /270 kW[a,b] (250 HP[c])	Diesel No. 2 max 17.9 gph[d] (13.9 gph[e])

[a] Based on manufacturer's specifications.
[b] Maximum advertised HP and kW.
[c] Engine was dyno tested at 250 HP. Per discussion with Caterpillar representative, the engine is rated at 250 HP for Industrial C-duty cycle. Rock crushing applications are categorized under an Industrial C-duty rating.
[d] Maximum fuel feed rate based on manufacturer specification sheet (Industrial C-duty cycle).
[e] Maximum fuel feed rate based on manufacturer performance test data @ 250 HP.

Any changes to the proposed setup, operation, or materials processed in the plant shall warrant a re-evaluation of the maximum capacity.

Air Pollution Controls:

The facility will control particulate emissions by employing water spray bars at the following material transfer points:

- loading at jaw crusher;
- transfer from built-in conveyor belt to radial conveyor; and
- transfer from radial conveyor to stockpile.

Water is supplied from a 3,000 gallon water tank equipped with a 3 HP/80 psi water pump. In addition, the material is dampened before and after crushing operations. An on-site water truck will be utilized for the spraying of the feed and finish stockpiles, as well as haul roads, and the crushing area during operation of the plant to minimize fugitive emissions.

Air pollution control is also achieved through the use of diesel No. 2 with a maximum sulfur content not to exceed 0.5% by weight.

Background:

E. M. Rivera & Sons, Inc. was issued a temporary covered source permit on October 24, 2000, to operate a new portable crushing plant at various locations. The initial location was at Honokohau, Hawaii (Big Island), where the crusher is stored between projects. The site and surrounding quarry has a fence surrounding the entire area. However, there are several other businesses located inside of the fenced area. The crusher location is east of Queen Kaahumanu Highway, NE of the end of Access Road "A". Located to the west of the crusher site are several businesses including Big Island Disposal and Kona Transport. To the north, south, and east of the crusher site are undeveloped lands (lava).

E. M. Rivera & Sons, Inc. uses the equipment to crush basalt rock and concrete at various locations. The operation would consist of feeding the crusher by front end loader. The crusher is a self-contained and mobile crushing unit for crushing of basalt rock and concrete debris. The material is deposited on the vibrating grizzly feeder and travels through the jaw crusher. The material is crushed to size and discharged onto the built-in belt conveyor. The crushed material then travels over the radial conveyor and is delivered for stockpiling.

The 362 HP Caterpillar 3306 direct injection, turbocharged diesel engine generator (which is part of the crushing unit) provides the power for the self contained unit. There are no screens, additional conveyors, or any other optional equipment proposed.

As was proposed previously, the applicant again proposes that operating hours of the portable crushing plant and diesel engine generator be limited to not more than 2,080 hours/yr. The length of operation at each project site would vary between a few weeks to several months with normal operating hours of 8 hours per day, 5 days per week. Operations will be irregular depending on job availability. Typically, there are times when the plant will sit idle.

The diesel engine generator will be run on Diesel No. 2, with sulfur content not to exceed 0.5% by weight. E. M. Rivera & Sons, Inc. utilizes a 250 gallon fuel tank for the storage of diesel fuel.

The application for renewal of the permit indicates that there will be no changes to the existing permit conditions, operational limitations or work practices associated with the generator as was initially permitted, except that the application included a request for an "alternate operating scenario." This scenario involves the temporary replacement of the 362 HP diesel engine with another engine of equal or lesser size with equal or lesser emissions if any repair reasonably warrants the removal of the diesel engine generator from the site (i.e., equipment failure, engine overhaul, or any major equipment problems requiring maintenance for efficient operation.

Additional background information on the initial application and issued permit is available in permit file no. 0476-01.

Issuance of this permit will supersede Covered Source Permit (CSP) No. **0476-01-CT** in its entirety.

Applicable Requirements:

Hawaii Administrative Rules (HAR)
- Title 11 Chapter 59, Ambient Air Quality Standards
- Title 11 Chapter 60.1, Air Pollution Control
  - Subchapter 1 - General Requirements
  - Subchapter 2 - General Prohibitions
    - 11-60.1.31 Applicability
    - 11-60.1-32 Visible Emissions
    - 11-60.1-33 Fugitive Dust
    - 11-60.1-38 Sulfur Oxides from Fuel Combustion
  - Subchapter 5 - Covered Sources
  - Subchapter 6 - Fees for Covered Sources, Noncovered Sources, and Agricultural Burning
    - 11-60.1-111 Definitions
    - 11-60.1-112 General Fee Provisions for Covered Sources
    - 11-60.1-113 Application Fees for Covered Sources
    - 11-60.1-114 Annual Fees for Covered Sources
  - Subchapter 8 - Standards of Performance for Stationary Sources
    - 11-60.1-161(25) Standards of Performance for Non-metallic Mineral Processing Plants
  - Subchapter 10 – Field Citations

New Source Performance Standards:
40 Code of Federal Regulations (CFR) Part 60 - Standards of Performance for New Stationary Sources

Subpart A -	General Provisions
Subpart OOO -	Standards of Performance for Non-metallic Mineral Processing Plants

40 CFR Part 60 Subpart OOO applies to portable crushed stone plants with capacities greater than 150 TPH that commence construction, reconstruction, or modification after August 31, 1983. The subject 170 TPH portable crushing plant was manufactured in 1998, and thus the crushing plant, including the conveying systems are subject to Subpart OOO. The dates of manufacture for the equipment are shown in Table 1.

This source is not subject to Prevention of Significant Deterioration (PSD) requirements because it is not a major stationary source, as defined in HAR Title 11, Chapter 60.1, Subchapter 7 and 40 CFR Part 52, Section 52.21.

This source is not subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) as there are no standards in 40 CFR Part 61 applicable to this facility (stone processing plant operations).

40 CFR Part 63, Subpart ZZZ established national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major sources of HAP emissions. Since the applicant's DEG is not located at a major source of HAP emissions, it is not subject to this Subpart.

This source is not subject to Maximum Achievable Control Technology (MACT) requirements because the facility is not a major or area source of HAPS, covered under 40 CFR Part 63.

A Best Available Control Technology (BACT) analysis is required for new sources or modifications to existing sources that would result in a net significant emission increase as defined in HAR, Section 11.60.1-1. During the initial permit application review, it was determined that facility's emissions, operating at 2,080 hrs/yr, do not exceed significant levels for any regulated air pollutant. The renewal application proposes no modifications that will increase emissions. As such, BACT is not required for this facility.

The purpose of Compliance Assurance Monitoring (CAM) is to provide reasonable assurance that compliance is being achieved with large emission units that rely on air pollution control device equipment to meet an emissions limit or standard. Pursuant to 40 CFR, Part 64, for CAM to be applicable, the emissions unit must: (1) be located at a major source; (2) be subject to an emissions limit or standard; (3) use a control device

to achieve compliance; (4) have potential pre-control emissions that are greater than the major source level; and (5) not otherwise be exempt from CAM. CAM is not applicable because this facility is not a major source.

The facility will be placed into the Compliance Data System (CDS) since this source is a covered source and it is subject to annual emissions reporting.

Annual in-house emission reporting is required if the total combined facility's emissions of a particular pollutant exceed the "in-house" triggering levels levels. Total combined emissions from this facility do not exceed these levels. However, annual emissions reporting is required for all covered sources.

40 CFR Part 51, Subpart A - Emission Inventory Reporting Requirements, determines Consolidated Emissions Reporting (CER) based on facility wide emissions of each air pollutant at the CER triggering levels shown below. This facility does not have any emissions at the CER triggering levels. Therefore, CER requirements are not applicable.

The table below summarizes the facility's emissions at its operational limit of 2,080 hr/yr compared to the various threshold levels.

Maximum Emissions Compared to Significant Levels, CER, and "In-house" Thresholds (All Values in TPY)

Pollutant	Permit Limit (2,080 Hr/yr)		Signi-ficant Levels (TPY)	CERR Triggering Levels (TPY)		"In-house" Reporting Levels (TPY)
	Excluding Exempt DEG	Including Exempt DEG		1-Year Cycle (Type A Sources)	3-year Cycle (Type B Sources)	
NOx	11.25	11.34	40	≥ 250	≥ 100	≥ 25
CO	2.42	2.44	100	≥ 2500	≥ 100	≥ 250
SO2	1.31	1.32	40	≥ 2500	≥ 100	≥ 25
PM-10	2.46	2.47	15	≥ 250	≥ 100	≥ 25
PM	5.59	5.60	25	≥ 2500	≥ 1000	≥ 25
VOC	0.92	0.93	40	≥ 250	≥ 100	≥ 25
HAPs	0.02	0.02	--	--	--	≥ 5

Insignificant Activities/Exemptions:

1. A 3 HP diesel engine used to run the water pump for the water spray system is exempt from the air permit requirements per 11-60.1-82(f)(2) which exempts fuel burning equipment with a heat input capacity less than one million BTU per hour, except where the total heat input capacity of all individually exempted equipment exceeds five million BTU per hour when operated within the facility and controlled by a single owner or operator. Converting to MMBtu/Hr per AP-42 Table 3.3-1, note c. conversion:

   (3 HP) x (7,000 Btu/HP-hr) = 0.021 MMBtu/Hr << 1 MMBtu/HR

2. Diesel No. 2 fuel will be stored on site in a 250 gallon fuel storage tank. This storage tank is exempt from the air permit requirements per HAR, Section 11-60.1-82(f)(1) because it has a capacity of less than 40,000 gallons and is not subject to any standard or other requirement pursuant to Section 111 or 112 of the CAA. This tank is not subject to NESHAPS as there are no standards in 40 CFR Part 61 applicable to this source. It is also not subject to NSPS as there are no applicable regulations in 40 CFR Part 60 pertaining to this fuel tank.

   - Subpart K (Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978) and Subpart Ka (Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984) are not applicable because the diesel fuel #2 stored in the tanks is not classified as a petroleum liquid. Per the definitions of these sections, petroleum liquids do not include diesel fuel oils Nos. 2-D through 4-D as specified in ASTM D975-78.

   - Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984) is also not applicable. Per Section 60.110b(b), storage vessels with a design capacity less than 75 cubic meters (19, 815 gallons) are exempt from the General Provisions (Subpart A) and the provisions of this subpart.

Project Emissions:

The data below summarizes the Department of Health's emission calculations, performed in Enclosures (1), (2), (3), (4), and (5).

170 TPH Rock Crusher. Worst case emissions (using the maximum capacity of the crusher, 170 TPH) from the crushed stone processing were calculated and are summarized below and shown in Enclosure (1). Operations are based on 2,080 hrs/yr per the applicant's proposal.

Pollutant	Emissions from Rock Crusher (TPY) [a]
PM-10	0.350
PM	0.879

[a] Based on emissions from the facility operating at the permit limit of 2,080 hr/yr and 170 TPH capacity.

Stockpiles. Worst case emissions from aggregate handling and storage piles were calculated and are summarized below and shown in Enclosure (2).

Pollutant	Emissions from Stockpiles (TPY) [a]
PM-10	0.71
PM	1.50

[a] Based on emissions from the facility operating at the permit limit of 2,080 hr/yr and 170 TPH capacity.

Vehicle Travel. Worst case emissions from unpaved road traffic (truck travel) are summarized below and are shown in Enclosure (3).

Pollutant	EF (lb/VMT)	VMT	Emission from Vehicle Travel (TPY) [a]
PM-10	0.773	5,051	0.59
PM	3.158	5,051	2.39

[a] Based on emissions from the facility operating at the permit limit of 2,080 hr/yr and 170 TPH capacity.

362 HP Diesel Engine. Worst case emissions from the 362 HP diesel engine generator were calculated assuming 2,080 hours of operation a year firing diesel no. 2 per the applicant's proposal. The manufacturer specified maximum fuel feed rate of 17.9 gph for an Industrial C-duty rating (rock crushing applications) was conservatively used instead of the 13.9 gph value obtained from engine testing data at 250 HP. Emissions

are summarized below and detailed in enclosure (4).

Pollutant	**Emissions 362 HP DEG (2,080 hr/yr) (17.9 gal/hr)**
NO_X	11.25
CO	2.42
SO_2	1.31
PM-10	0.82
PM	0.82
Aldehydes	0.18
TOC	0.92
HAPs	0.018

3 HP Diesel Engine (Exempt). Worst case emissions from the exempt 3 HP diesel engine were calculated at 2,080 hr/yr of operation firing diesel no. 2. All emission calculations were based on a heating value for diesel No. 2 of 137,000 Btu/gal. Calculated emissions for the engine are summarized below and shown in Enclosure (5).

Pollutant	**Emissions 3 HP DEG (2,080 hr/yr) (0.15 gal/hr)**
NO_X	0.094
CO	0.02
SO_2	0.011
PM-10	0.007
PM	0.007
Aldehydes	0.001
TOC	0.008
HAPs	1.48E-4

Emissions Summary. Calculations show that the majority of emissions are fugitive in nature and are generated by vehicle traffic on the unpaved roads. Please refer to the attached spreadsheets for details.

FACILITY-WIDE EMISSIONS SUMMARY

EQUIPMENT and CRUSHING PROCESSES [a] EMISSIONS (TPY) - 2,080 hr/yr						TOTAL EMISSIONS (TPY)			
						Excluding Exempt DEG		Including Exempt DEG	
Pollutant	DEG [b] (Firing 17.9 gal/hr)	EXEMPT DEG for Water Pump (0.15 gal/hr)	Rock Crushing Process	Stock-pile	Vehicle Travel	With Permit Limits (2,080 hrs/yr)	Without Permit Limits (8,760 hrs/yr)	With Permit Limits (2,080 hrs/yr)	Without Permit Limits (8,760 hrs/yr)
NOx	11.247	0.094	--	--	--	11.25	47.37	11.34	47.77
CO	2.423	0.020	--	--	--	2.42	10.20	2.44	10.29
SO2	1.310	0.011	--	--	--	1.31	5.52	1.32	5.57
PM-10	0.816	0.007	0.350	0.71	0.59	2.46	10.37	2.47	10.40
PM	0.816	0.007	0.879	1.50	2.39	5.59	23.54	5.60	23.57
VOC	0.918	0.008	--	--	--	0.92	3.87	0.93	3.90
HAPs	0.018	0.000	--	--	--	0.018	0.074	0.018	0.075

[a] Emissions are calculated for 2,080 hr/yr of operation. Total facility emissions are tabulated for both the permit limit of 2,080 hr/yr and the maximum PTE of 8,760 hr/yr.

[b] Emissions for the 362 HP engine generator as shown above, were conservatively calculated using a maximum fuel feed rate of 17.9 gph obtained from the manufacturer's specification sheet for an Industrial C-duty rating (rock crushing applications). The applicant used a maximum fuel feed rate of 13.9 gph obtained from performance test data for this engine at 250 HP. The (larger numbers) emissions calculated using the maximum fuel feed rate of 17.9 gph were conservatively used in the facility analysis.

Major Source Applicability: A major source as defined in Section 11-60.1-1 of HAR Title 11, has the potential to emit any HAP of 10 TPY or more, or 25 TPY or more of any combination of HAPs, or 100 TPY or more of any air pollutant. Calculated emissions, as shown in the above table, do not meet these limits and thus, this facility is not classified as a major source.

Synthetic Minor Applicability: A synthetic minor source is a facility that is potentially major (as defined in HAR 11-60.1-1), but is made nonmajor through federally enforceable permit conditions (e.g., limiting the facility's hours of operation and limiting the facility's production rate). This facility is not a synthetic minor based on potential emissions of less than "major" levels (< 100 TPY) when the stone processing plant and diesel engine generator are operated at 8,760 hr/yr. See enclosures for detailed calculations.

Air Quality Assessment:

The ambient air quality standards seek to protect public health and welfare and to prevent the significant deterioration of air quality.

For new facilities and facilities proposing modifications, an ambient air quality assessment is required to analyze the maximum potential pollutant concentrations generated by a source and its effect on the ambient air.

The Department of Health generally exempts an applicant from performing an ambient air quality impact analysis for (1) existing sources with no proposed modifications, (2) exempt activities, (3) fugitive emission sources (e.g., storage tanks, storage piles, pipe leaks, etc.), and (4) intermittent operating noncombustion sources.

Previously, during the assessment of the initial permit application in October 2000, the permittee and the Department of Health conducted an Ambient Air Quality Impact Analysis (AAQIA) for the applicant's 362 HP diesel engine generator using the EPA SCREEN3 model. The application review determined that an AAQIA was not required for the rock crushing plant (fugitive emissions only), nor for the 3 HP generator for the water pump (exempt activity).

The results of the analysis showed that the combined effect of 1) maximum concentrations generated by the 362 HP diesel engine generator and 2) ambient background concentrations, were in compliance with the State Ambient Air Quality Standards and Federal Ambient Air Quality Standards

The current application for permit renewal proposed no changes that would increase emissions from the permittee's 362 HP diesel engine generator. Based on this, as well as on the previous analysis conducted, another ambient air quality modeling assessment for the renewal application is not required.

Significant Permit Conditions:

Condition: The operating hours of the 170 TPH portable crushing plant including the 362 HP diesel engine generator shall not exceed two-thousand eighty 2,080 hours in any rolling twelve (12) month period.

Purpose: The applicant has proposed 2,080 hours as the maximum hours of operation per year to ensure the facility complies with the ambient air quality standards for NO_2. Monitoring of the annual limitation will be achieved through the use of a non-resetting hour meter on the diesel engine generator.

Condition: 40 CFR Part 60 Subpart OOO provisions are applicable to the jaw crusher and conveyors. The permittee shall comply with all applicable provisions of these standards, including all emission limits and all notification, testing, monitoring, and reporting requirements.

Purpose: To specify equipment subject to 40 CFR 60, Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants.

Condition: The permittee shall not cause to be discharged into the atmosphere from any transfer point on the belt conveyors or from any other affected facility any fugitive emissions which exhibit greater than ten (10) percent opacity.

Purpose: This condition required by NSPS (40 CFR 60.672(b)).

Condition: The permittee shall not cause to be discharged into the atmosphere from the primary crusher, fugitive emissions which exhibit greater than fifteen (15) percent opacity.

Purpose: This condition required by NSPS (40 CFR 60.672(a)).

Condition: Initial and annual source performance tests shall be conducted pursuant to Special Condition, Section F. Test summaries and results shall be maintained in accordance with the requirements of this section.

Purpose: The facility is subject to 40 CFR 60, Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants. An initial and annual source performance test is required for the measurement of opacity. The annual source performance test is a State requirement to help ensure the facility is operating in compliance with the ambient air quality standards.

Conclusion and Recommendation:

Actual emissions from this facility should be lower than estimated based on the following reasons:

a. The calculated project emissions were based on the potential worst possible conditions (maximum rated capacity, 170 TPH) of the crushing plant. Actual crushing capacity will vary depending on product size and the type of material. Manufacturer's specifications identify a range of 70 to 170 TPH.

b. Calculations were based on 2,080 hours a year of operations for the facility, the 362 HP diesel engine generator, and for the exempt 3HP diesel engine. However, crushing operations will be on a temporary basis with intermittent periods of operation, contingent upon jobs performed. The applicant projected 8 hours operation a day with periods of time where the facility will sit idle in between jobs.

c. Potential emissions calculations for the 362 HP diesel engine generator were conservatively based on the maximum fuel feed rate of 17.9 gal/hr per the manufacturer's specification sheet for an Industrial C-duty rating (rock crushing applications). Manufacturer's performance test data provided by the applicant indicated a much smaller maximum fuel feed rate of 13.9 gal/hr at 250 HP.

Based on the information submitted by E. M. Rivera & Sons, Inc., it is the determination of the Department of Health (DOH), that the proposed project will be in compliance with the Hawaii Administrative Rules (HAR), Chapter 11-60.1 and State and Federal ambient air quality standards. Therefore, recommend renewal of the Temporary Covered Source Permit for E. M. Rivera & Sons, Inc. subject to the incorporation of the significant permit conditions, 30-day public comment period, and 45-day review by EPA.

WK, 8/30/04